

I claim:

1. A seal assembly for closing off an annular space between a first and second body and supported by at least one of said first and second bodies, comprising:

an annularly shaped body having an upper and a lower end;

at least one backup ring mounted on one of said ends of said body and having a relaxed dimension greater than the annular gap between said first and second bodies so that opposed ends on said backup ring must be compressed to be inserted in the annular gap, said backup ring further comprising a bend between said opposed ends to store a force created by insertion of said backup ring into the annular space and apply said force on said opposed ends against said first and second bodies.

2. The assembly of claim 1, wherein:

said body urges said ends away from each other.

3. The assembly of claim 1, wherein:

said ends loop toward each other.

4. The assembly of claim 1, wherein:

said body comprises at least one first ring in a first groove.

5. The assembly of claim 4, wherein:

the circumference of said first ring exceeds the circumference of said first groove.

6. The assembly of claim 5, wherein:

said first ring, when placed in contact with one of said first and second bodies, deforms in a manner so as to force said ends of said backup ring away from each other.

7. The assembly of claim 5, wherein:

 said first ring circumference is in the range of at least about 8-15% greater than said groove in which it is installed.

8. The assembly of claim 5, wherein:

 said first ring is made from a material having a Durometer hardness of about 56-85.

9. The assembly of claim 5, wherein:

 said first ring contacts the one of said first and second bodies with the smaller dimension.

10. The assembly of claim 4, wherein:

 said first ring contacts the one of said first and second bodies with the larger dimension;

 said first ring has a circumference that is shorter than the circumference of said first groove.

11. The assembly of claim 10, wherein:

 the circumference of said first ring in the range of about 6-20% shorter than the circumference of said first groove.

12. The assembly of claim 4, wherein:

 said first ring contacts the one of said first and second bodies with the larger dimension;

 said first ring, when said body is installed in the annular gap, is in an interference fit with said one of said first and second bodies to an extent of at least about 20% of the cross-sectional diameter of said first ring.

13. The assembly of claim 12, wherein:

 said first ring is made from a material having a Durometer hardness of about 56-85.

14. The assembly of claim 5, wherein:

 said body further comprises at least one second ring in a second groove disposed on the opposite side of said body from said first ring;
 said second ring contacts the one of said first and second bodies with the larger dimension;

 said second ring, when said body is installed in the annular gap, is in an interference fit with said one of said first and second bodies to an extent of at least about 20% of the cross-sectional diameter of said second ring.

15. The assembly of claim 14, wherein:

 said first ring is made from a material having a Durometer hardness of about 56-85.

16. The assembly of claim 6, wherein:

 said body has a longitudinal axis and said deformation results in said first ring deforming into an undulating wave pattern in an axial direction parallel to said longitudinal axis.

17. The assembly of claim 5, wherein:

 said body further comprises at least one second ring in a second groove disposed on the opposite side of said body from said first ring;

said second ring contacts the one of said first and second bodies with the larger dimension;

said second ring has a circumference that is shorter than the circumference of said first groove.

18. The assembly of claim 17, wherein:

the circumference of said second ring in the range of about 6-20% shorter than the circumference of said first groove.

19. A seal assembly for closing off an annular space between a first and second body and supported by at least one of said first and second bodies, comprising:

an annularly shaped body having an upper and a lower end;

said body comprises at least one first ring in a first groove;

the circumference of said first ring exceeds the circumference of said first groove.

20. The assembly of claim 19, wherein:

said first ring circumference is in the range of at least about 8-15% greater than said groove in which it is installed.

21. The assembly of claim 20, wherein:

said body further comprises at least one second ring in a second groove disposed on the opposite side of said body from said first ring;

said second ring, when said body is installed in the annular gap, is in an interference fit with said one of said first and second bodies to an extent of at least about 20% of the cross-sectional diameter of said second ring.

22. The assembly of claim 21, wherein:

said first and second rings are made from a material having a Durometer hardness of about 56-85.

23. The assembly of claim 22,further comprising:

at least one backup ring mounted on one of said ends of said body and having a relaxed dimension greater than the annular gap between said first and second bodies so that opposed ends on said backup ring must be compressed to be inserted in the annular gap, said backup ring further comprising a bend between said opposed ends to store a force created by insertion of said backup ring into the annular space and apply said force on said opposed ends against said first and second bodies.

24. The assembly of claim 23, wherein:

said first ring, when placed in contact with one of said first and second bodies, deforms in a manner so as to force said ends of said backup ring away from each other.

25. The assembly of claim 24, wherein:

said first ring contacts the one of said first and second bodies with the smaller dimension;
said body has a longitudinal axis and said deformation results in said first ring deforming into an undulating wave pattern in an axial direction parallel to said longitudinal axis.